

Wickenburg Ranch Water Reclamation Facility
Aquifer Protection Permit No. P-106085
Place ID 135551, LTF No. 76294
Significant Amendment

I. Introduction:

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit (APP) for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards (AWQS) at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

II. Facility Location:

3845 North Privy Path Drive
Wickenburg, Arizona 85390

III. Facility Description:

The Town of Wickenburg is authorized to operate the Wickenburg Ranch Water Reclamation Facility (WRF) with a maximum monthly average flow of 0.365 million gallons per day (mgd) upon completion of the upgrades to the facility. The WRF will be upgraded in two (2) Phases; Phase 1 is rated at 0.1 mgd and Phase 2 is rated at 0.365 mgd.

Phase 1 Treatment Plant:

The 0.1 mgd WRF consists of an influent lift station, a headworks with two (2) rotating drum screens and a compactor, a flow equalization basin, an anoxic basin, two (2) pre-aeration basins, two (2) membrane bioreactors (MBR) with one membrane module in each MBR, an ultraviolet (UV) disinfection unit, an aerobic digester and a reclaimed water pump station. The new UV disinfection system will be constructed in the existing UV channels only and will be used for Phase 1 and 2.

During the Phase 1 installation of the new UV disinfection system, the facility is permitted to use a temporary trailer-mounted UV disinfection unit.

Phase 2 Treatment Plant:

The 0.365 mgd WRF consists of an influent lift station with new pumps, a headworks with two (2) rotating drum screens and a compactor, a flow equalization basin, an anoxic basin, two (2) pre-aeration basins, two (2) membrane bioreactors (MBR) with two (2) membrane modules in each MBR, a new UV disinfection unit, an aerobic digester and a reclaimed water pump station. The UV disinfection unit will include chlorination and de-chlorination to prevent regrowth of bacteria to the effluent.

The WRF will produce reclaimed water meeting Class A+ Reclaimed Water Standards (A.A.C. R18-11, Article 3) which may be delivered for beneficial use under a valid recycled water permit under A.A.C. R18-9, Article 7. The effluent may also be discharged to the Martinez Wash under a valid Arizona Pollution Discharge Elimination System (AZPDES) permit AZ0025976. Sludge shall be hauled off-site for management or disposal in accordance with state and federal regulations.

IV. Amendment Description:

The purpose of this amendment is to:

- Increase in the design flow from 0.1 million gallons per day (mgd) to 0.365 mgd;
- Replace the existing influent pumps with larger size pumps at the influent pump station;
- Add an additional membrane module to each of the existing membrane bioreactor and related air piping;
- Add an additional blower to the aeration process;
- Add a new UV disinfection unit within the existing UV channels for Phases 1 and 2;
- Replace three (3) of the existing permeate pumps with five (5) new permeate pumps;
- Add chlorination and de-chlorination to the UV Unit to prevent bacterial regrowth to the effluent;
- Update the Contingency Plan; and
- Updated the closure/post-closure cost.

V. Regulatory Status:

The facility has never been inspected.

The permit category for this amendment was determined to be a “Significant Amendment” in accordance with A.A.C. R18-9-A211(B)(2)(b), due to an increase in design flow greater than 10 percent for facilities with a permitted design flow of 500,000 mgd or less.

VI. Best Available Demonstrated Control Technology (BADCT):

The WRF has been designed, constructed, operates, and is maintained to meet the treatment performance criteria for new facilities as specified in A.A.C. R18-9-B204. The facility shall meet the performance requirement for industrial pre-treatment as per A.A.C. R18-9-B204(B)(6)(b).

The treatment facility shall not exceed a maximum seepage rate of 550 gallons per day per acre for all containment structures within the treatment works.

VII. Compliance with Aquifer Water Quality Standards (AWQS):

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the point of compliance, representative samples of the effluent will be collected downstream of the effluent pump station. The permittee will monitor the effluent every day for flow rate, daily for fecal coliform, monthly for total nitrogen, quarterly for metals and semi-annually for organic compounds (see Section 4.2, Tables IA-1 and IA-2, in the permit).

To ensure that site operations do not violate the Reclaimed Water Quality Standards for the beneficial use of Class A+ reclaimed water, the permittee will monitor the reclaimed water at sampling point located downstream of the effluent pump station. The permittee will monitor the reclaimed water daily for fecal coliform, and turbidity, and monthly for total nitrogen (see Section 4.2, Table IB, in the permit).

Facility inspection and operational monitoring will be performed on a routine basis (see Section 4.2, Table III, in the permit).

Groundwater monitoring is not required at the point of compliance at the time of permit issuance.